



THE CHINA LAKER

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President's Message

by Laura Hickle, hicklelh@gmail.com

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The end of 2020 is almost upon us. I saw a sign the other day that sums it up well, "This year I am staying up until 12:01 am on January 1st- not to say hello to the new year but to make sure that 2020 actually leaves!" Despite the crazy times of COVID and the openings and closings we were able to make progress as a museum due to the outstanding Board of Directors (see page 11), staff and volunteers. Everyone has been working behind the scenes to add to the museum within our limited space, grants have been written and planning is occurring. Construction of our next building still continues to be a challenge, but we hope to close a deal with a contractor on our construction project in the very near future. We need more space for all of our plans.



It is critical to have more diverse involvement at the museum, whether it be as a docent, volunteer to work on projects or even serving on the Board of Directors. As Art and I prepare to leave for our new home in Nevada at the end of the year we appreciate Russ Bates and Tom Miller stepping forward to serve on the board. We have several other openings available and would love to have the chance to discuss your possible involvement. If you want the museum to grow, we need you to get involved. Let's celebrate our important history.

We look forward to seeing you at our Virtual Member's meeting on December 3rd. December 8th is a way for us to give back by offering members a 25% gift shop discount. As you end the year, we hope you will consider a donation to the museum, if you are able. Until I see you again, hopefully at a future live Dinner Auction, I wish you all a wonderful holiday season and a happier 2021.



26 years strong

130 E. Las Flores Ave
Ridgecrest, CA 93555
www.chinalakemuseum.org
(760) 677-2866

You can also find us at...

Facebook: [@ChinaLakeMuseum](https://www.facebook.com/ChinaLakeMuseum)

Instagram: [@chinalakemuseum](https://www.instagram.com/chinalakemuseum)

Meet our New Office Manager - Heather Davis



Hello, my name is Heather Davis and I am the new Office Manager for the Museum. My family moved to the Indian Wells Valley when I was a small girl, and I proudly claim Ridgecrest as my hometown. I grew up here and attended several schools on the Base - Richmond, Groves, and Murray! I graduated from Burroughs where I was active in the marching band, and I also attended and graduated from Cerro Coso. I have five children who are currently attending some of the same schools that I attended. When I'm not working or spending time with my kids, I enjoy being outdoors in our beautiful desert or visiting the mountains or beach. Camping is one of the things my kids and I really enjoy! I am thrilled to be a part of the team here at the Museum and I am looking forward to learning more about the history of our Base and our town. Come on by the Museum and say hi, I would love to meet you!

Things are Happening

- ◆ During September, rain gutters were installed around the museum for proper rain water distribution.
- ◆ Three Cargo Containers, cement flooring, and a canopy were installed and are now ready for use.
- ◆ The Vertical Launch ASROC mounting base was donated and poured by CLC Construction, Inc. Thank you Cory Lara and Company.
- ◆ Portable shelving has been procured and installed in the Cargo Containers for museum on-site storage.
- ◆ New displays (Tiny Tim, Skipper, and VLA) were moved from the base site to the current museum site. More artifacts are coming soon!

Canopy Cargo Containers with new concrete





Sidewinder Weathervane

Thank you to the Chenault Family for donating the Sidewinder Weathervane located up on the South-West corner of the museum building. Don't forget to look up on your next visit!

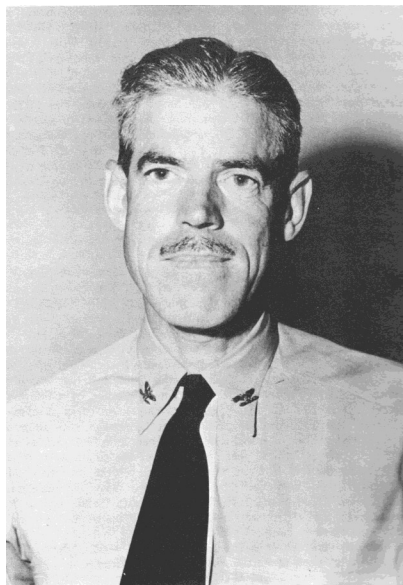
Did You Know...

“In 2008, as part of a new biomimetic technology initiative, (NAWCWD) China Lake released a study conducted in association with the University of Wyoming on the eyes of flies and other insects. The common fly has an amazing ability to find moving targets in cluttered backgrounds, as well as land on moving “platforms.” Researchers wanted to know how flies accomplish these tasks effortlessly and then possibly apply this research to improve imaging sensors and signal processing. From this research, a fiber-optic sensor was developed. Coupled with analog preprocessing hardware, this device has the potential to extract edge information quickly and in parallel. The sensor consisted of a 1-millimeter-diameter ball lens that focuses light onto an array of photodetectors, where the field of view overlaps by about 70%. In experiments, the sensor could locate a 1-millimeter-wide string as the string moved across the field of view at distances up to 200 millimeters from the lens, with minimal error. This quality of high-resolution systems could also have future applications in various medical, commercial, industrial, and defense areas, including robotics.”

This excerpt was taken from “Arming the Fleet - Third Edition 1943-2011 Providing Our Warfighters the Decisive Advantage, Page 140-141”

This book is available for purchase in the China Lake Museum Gift Shop for \$45.

**Captain (later Rear Admiral)
Sherman E. Burroughs, Jr.,
the Station's First
Commanding Officer**



CAPTAIN ON BOARD

“There was no ceremony. The young Navy captain simply arrived and took charge. So inconsequential seemed the occasion that the exact time and date were never recorded. But evidence indicates it was December 21, 1943, when Captain Sherman Everett Burroughs, Jr., took command of the Naval Ordnance Test Station.

The lack of ceremony was undoubtedly determined by the paucity of the new command itself: a remote airstrip built some ten years earlier, six Quonset huts, and a crude mess hall that had only just been hastily assembled in the desolate corner of California's Mojave Desert that the map designated “Inyokern.” If a ceremony had been held on Burroughs' assumption of command, the “all-hands muster” would have produced a lean assortment of four officers and a scanty crew of enlisted men. As guests of the command it might have been possible to lure a half-dozen of the scientists and technicians who commuted to the Station from the California Institute of Technology, Pasadena California, and perhaps a construction worker or two could have peered up from the task of assembling Quonset huts.

As he viewed the endless miles of open desert, the slender Academy-erect captain, known as “Ev” to his associates had much to ponder in a way that had not been possible back at the Bureau of Ordnance “aviation desk” in Washington. The Station he had originally proposed in the spring of that year, 1943, had become a reality.”

(This excerpt was taken from *The Grand Experiment at Inyokern, Vol 2, page 3*)

Our local Sherman E. Burroughs High School was named in honor of CAPT Sherman E. Burroughs.

**BHS
Established 1944**



Go Burros!

Calling All Members... You are Invited!

China Lake Museum Foundation's Annual Members Meeting

Thursday, December 3rd from 5:00 - 6:30 pm PST

Due to COVID-19 pandemic restrictions the Annual Members Meeting will be rather different than in years past.

This year's meeting will be completely virtual. We hope that you will take some time to join us virtually on Zoom.

To join the meeting, you must already have Zoom downloaded on your computer or mobile device.

To download Zoom, go to www.zoom.com on your computer or visit your App Store on any mobile device.

Open Zoom and enter the following -

Meeting ID: 692 591 3226

Passcode: 108040



If you have any questions about logging into the zoom meeting, please call Jenn or Heather at the museum at 760-677-2866 or email Jenn at chinalakemuseumstoremanager@gmail.com. They will be happy to help.



Extended discount shopping hours!

Members and Volunteer Discount Day
Tuesday, December 8th from 10:00 am to 4:00 pm

Visit the Museum Gift Shop
for your 25% Discount.

Bring this page of the Newsletter for your discount.

China Lake Pave Knife Program

Corrected Version— a critical paragraph was missing in the last newsletter

In July, 1972, RADM Moe Wittman, Commander Navy Air Pacific (AIRPAC), requested China Lake to recommend a Quick Reaction Program to provide the fleet with a self-contained capability for airborne delivery of the Navy inventory of laser guided bombs (LGB)s in Vietnam.

The Air Force had Pave Knife pods on their F-4 Phantoms and were realizing great success with the precision LGB delivery in hostile environments.

The Pave Knife pod consisted of a low light level TV, Laser Designator, Laser Range Receiver, video recorder, and stabilized sight permitted lower hemisphere coverage and provided aircraft flexibility to continue lasing when egressing the target area.

Phil Arnold was assigned the job, and teamed with Chuck Smith, Arnold's Division Head, to assess the options. China Lake had already deployed handheld laser designators that were developed under the leadership of Conrad Neal and Leonard Haugen in Code 4051, of the Weapons Department led by Frank Knemeyer. Arnold recommended the quickest solution would be to acquire three Pave Knife pods and adapt them to the A-6A aircraft. The A-6 aircraft equipped with Pave Knife could designate and deliver LGBs and designate targets in support of other aircraft armed with LGBs.

China Lake was tasked to lead the Quick Reaction Capability effort.

Attack Squadron VA-145 was designated to provide three aircraft and a special detachment to El Toro Marine Air Base and work with China Lake to integrate, evaluate and deploy the Navy Pave Knife system using the Quick Reaction Capability (QRC) priority. Commander Rupe Owens, Attack Squadron VA 145 Skipper (RADM, USN retired) led the VA-145 contingent.

China Lake led the effort to acquire three Pave Knife pods from Philco Ford (later Aeronu-tronic-Ford) in Newport Beach. The VA-145 aircraft already included upgrades in support of the Condor program (which had been cancelled) that mitigated major aircraft changes to adapt to the Pave Knife pod interface. The effort included establishing carrier suitability, addition of the necessary ship-board support facilities on the USS Ranger (CVA-61) and the test and evaluation of the integrated system on the China Lake ranges.

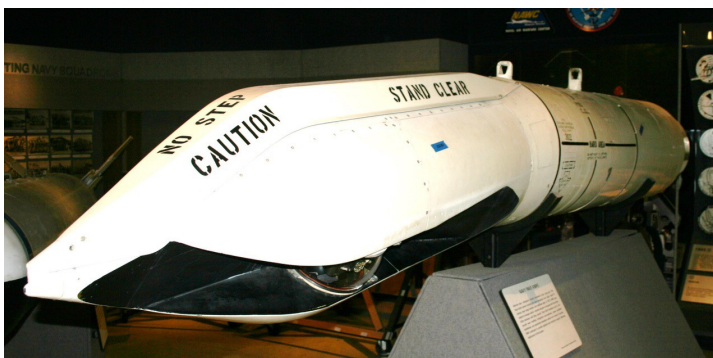
The required Pave Knife instruments were integrated into the cockpit. The bombardier navigator (BN) in the right seat was provided the hand controller for the laser designator, and a combined radar/TV display previously developed for the Condor program. The pilot displays in the left seat were upgraded to include laser range display and sightline indicators. In operation the BN lined up the camera and designator and tracked the target. The pilot used the sight-line indicators to maintain a heading that would not exceed the gimbal limits of the pod's optics.

Within five months, VA-145 was flying combat missions in Vietnam providing precision attacks on strategic targets. In one mission a coordinated strike involving several squadrons from the USS Ranger destroyed 16 bridges in less than three hours with other aircraft delivering the LGBs on the Pave Knife designated targets. VA-145 flew 85 successful Pave Knife sorties before the USS Ranger returned to their home port in June 1973.

The Navy Pave Knife was a China Lake success story. It was a quick reaction program completed within budget, that provided a vitally needed capability for the Navy's forces at war. By 1977, the Pave Knife system had been installed on Fleet A-6Es as well. It provided the only stabilized airborne laser designation capability for the Navy until 1980. In 1980 the A-6E Target Recognition and Attack Multi-sensor (TRAM), in which China Lake was also significantly involved, was introduced to the Fleet as the replacement technology in a much smaller package, fully integrated into the A-6E avionics suite.

Portions of this article were lifted from draft notes by Cliff Lawson that will be included in Volume 5 of China Lake History "Holding the Course", scheduled for release in 2020.

Bob Campbell
China Lake Pave Knife Project Engineer



New Displays at Museum



Tiny Tim



A Really Big Rocket Named Tiny Tim
WW II Air-to-Surface Rocket
 Franklin D. Roosevelt Era 1933 - 1944

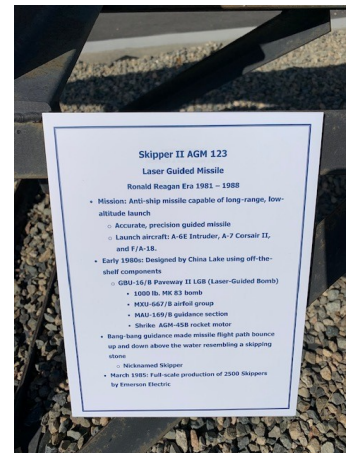
- Mission: Large combat ships and bunkers
 - Launch aircraft - TBM, SB2C, F6F, F4U
- Cal Tech and NOTS China Lake development
 - Largest rocket used in WW II
- Specifications
 - 11.75 inches in diameter
 - Standard oil well casings
 - 10.25 feet long
 - 1255 pounds
 - 500-pound semi-armor piercing warhead
 - Multi grain rocket motor
 - 4 grains each weighing 40 pounds



Displacement Launcher Ground Test-NOTS Inyoaker



Skipper



Skipper II AGM 123
Laser Guided Missile
 Ronald Reagan Era 1981 - 1988

- Mission: Anti-ship missile capable of long-range, low-altitude launch
 - Accurate, precision guided missile
 - Launch aircraft: A-6E Intruder, A-7 Corsair II, and F/A-18.
- Early 1980s: Designed by China Lake using off-the-shelf components
 - GBU-15/B Paveway II LGB (Laser-Guided Bomb)
 - 1000 lb. Mk 83 bomb
 - MKI-567/B seeker group
 - MAU-159/B guidance section
 - Skipper AGM-43B rocket motor
- Bang-bang guidance made missile flight path bounce up and down above the water resembling a skipping stone.
 - Nicknamed Skipper
- March 1985: Full-scale production of 2500 Skippers by Emerson Electric.



Vertical Launch ASROC (VLA) Antisubmarine Rocket



VLA Base for Mounting

News from the Gift Shop

A HUGE THANK YOU to the following volunteers that came out to help with the Annual Gift Shop Inventory on Wednesday, September 30th!!

Mark Andrews, Trish Boyd, Alice Campbell, Jenn Cobbel, Dolores Di Pol, Pat Doucette, Wayne Doucette, Cathy Foraker, Lela Herigstad, and Elaine Jones

Inventory would not have gone so quickly and smoothly without each of you!

Check Out Our Website & Shop
from Home

www.chinalakemuseum.org

Have questions about something you see on the website?? Email chinalakemuseumstoremanager@gmail.com with your questions.

We have lots of great Christmas gift ideas on the website that can be shipped anywhere in the United States.

Gift Shop is OPEN and will remain open even in the event that Museums are closed due to Covid-19!

**HOURS: Tuesday through Saturday
10:00 am to 4:00 pm**

Would you like to get out of your house or take care of some Christmas shopping?

Come visit our Gift Shop...

We have new Polo Shirts, Women's 3/4 length T-Shirts, Kids Educational items, Balsamic Vinegar, Olive Oil, Christmas Ornaments, Pistachios, books, chocolate and much more to fit your gifting needs this year.

Holiday Hours:

Don't forget to shop with our website on Cyber Monday!

CLOSED: Thanksgiving Day

Closing at NOON: New Year's Eve

Closing at NOON: Christmas Eve

CLOSED: New Year's Day

CLOSED: Christmas Day



Donors Since August Newsletter

Kenwood Benton
 William Burns
 Bob & Alice Campbell
 Wayne & Pat Doucette
 Hank & Linda Eberhart
 Oscar Felsen
 Mel & Barbara Foremaster
 Robert Joy
 Richard & Linda Klabunde
 Robert & Berniece Meade Trust
 Naomi Norris
 Lee & Karrie Olmsted
 Bill & Gwen Wharton
 Ken Wetzel & Patricia Wharton

Building Fund

Michael & Catherine O'Connell

Corporate and Business Donations

CLC Construction, Inc.
 Ken Blades Trucking
 RHM Capital Management Inc.
 S&M Coins
 TOSS

In Memory of Vi Davis

Lisa Edwards

In Memory of Bill Dykema

Bob & Alice Campbell
 Linda Miller

In Memory of Werner Hueber

Bob & Alice Campbell

In Memory of Wanda Williams

Lisa Edwards

Businesses and Non-Profit Organizations

Please support these businesses and organizations that support the China Lake Museum.

Alta One Federal Credit Union
 Boeing
 C. Martin Co.
 CLC Construction, Inc.
 Coso Operating Plant
 DCS Corporation
 Desert Valleys Federal Credit Union
 Electric Motor Works
 Hockett's Building Supply
 Ken Blades Trucking
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 Northrop Grumman
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 Ridgecrest Regional Hospital
 S & M Coins
 Spring Hill Suites / Hampton Inn
 The Swap Sheet
 TOSS, Inc.
 Vincent Avalos – Edward Jones Investments
 Windows, Walls 'N Floors
 WACOM
 Warren's Automotive

A Special Thank You to the following individuals for helping move the remaining museum boxes and items from our off-site storage units to the on-site museum Cargo Containers:

Mark Andrews, Mallory Boyd, Alice Campbell, Bob Campbell, Dennis Cott,
 Wayne Doucette, Tom Miller, and Charlie White

Board of Directors

CLMF OFFICERS

President	Laura Hickle
Treasurer	Suzette Caufield
Secretary	Dr. Bob Smith
First Vice President	Bob Campbell
Co-VP Operations	Wayne Doucette Pat Doucette
VP Facilities (Building)	Art Hickle
Co-VP Membership	Megan Rawson Alice Campbell
VP Fundraising	Laura Hickle
VP Curation/Exhibits	Dr. Bob Smith
VP Public Relations	Dave Cobbel

CLMF DIRECTORS

Russ Bates	Mallory Boyd
Dennis Cott	Tom Miller
Wayne Willhite	Charlie White

CLMF DIRECTORS EMERITUS

Milton Burford
Pat Connell
Burrell Hays
Paul Homer - Historian
Jack Latimer - History Committee Chairman
Dr. Craig Porter
William B. Porter
Jack Russell

TRUSTEES

RADM Michael Bachmann, USN (Ret.)
MajGen Jon Gallinetti, USMC (Ret.)
Dr. Karen Higgins, ED (Ret.)
CAPT Dave Janiec, USN (Ret.)
RADM Bert Johnston, USN (Ret.)
RADM Mike Mathis, USN (Ret.)
Don McLean
VADM David Nichols, USN (Ret.)
Scott O'Neil, Executive Director (Ret.)
VADM Mark Skinner, USN (Ret.)
CAPT Glenn Tierney, USN (Ret.)
CDR Stu Witt, Test Pilot, USN (Ret.)

A BIG *'Thank You'* to Our Museum Greeters who returned upon reopening again in October: Mark Andrews, Russ Bates, Karen Bruno, Rose Davis, Dolores Di Pol, Lela Herigstad, Elaine Jones, Linda Pruitt, Barb Tunget, John Van Gilder and Joy Young.



Winner's Choice Art Raffle

Congratulations Suzette Caufield, winner of the August 31st Winner's Choice Art Raffle.

The gift shop will be conducting the next Winner's Choice Art Raffle on December 18th.

Winner has the choice of one of three selected pieces of art. Check out the next raffle's art selections on our Facebook page.

With a gift shop purchase you get one free raffle ticket per purchased item. Tickets may also be purchased by calling the museum at 760-677-2866. Raffle Tickets are 1 for \$5.00 or 6 for \$20.

CHINA LAKE MUSEUM FOUNDATION

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City: _____
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Phone: _____
Email: _____

I want to help support the Museum!

Online donation: www.chinalakemuseum.org

Or call (760) 677-2866 to make your credit card donation

Please accept my donation of:

YES! \$25 \$50 \$100
 \$500 \$1,000 _____

Enclosed is my Check Visa MasterCard Other _____
Card Number: _____
Expiration Date: _____ CVC: _____
Signature: _____

For checks intended for the Phase 2 Building Project, please note on your check "Phase 2"